ENDEAVOUR

A review of the progress of science, published in five languages

VOLUME XXIV : 1965

Author index

AMBROSE, E. J. Cell movements. 27.

BIONDI, M. A. Recombination of ions and electrons. 40.

BLACK, M. Coccoliths. 131.

BRACHET, J. L. A. Acetabularia. 155.

CLOWES, F. A. L. Meristems and the effect of radiation on cells. 8.

COLBURN, C. B. The fluorides of nitrogen. 138.

DAVID, P. M. The surface fauna of the ocean. 95.

DOLLFUS, A. The planets. 87.

DOWDEN, D. A. Heterogeneous catalysis. 69.

EASTHAM, J. F. *See* WILLIAMS, F. C. and EASTHAM, J. F.

EDITORIAL

Centenary of Mendelism. 2.

Educating the young scientist. 62.

The International Biological Programme. 118.

FLEMING, M. G. and KITCHENER, J. A. Development of the theory of the flotation of sulphide ores. 101.

HARRIS, H. The ribonucleic acids in the nucleus and cytoplasm of animal cells. 50.

JOHNSON, A. W. Polyacetylenic compounds in nature. 126.

KITCHENER, J. A. *See* FLEMING, M. G. and KITCHENER, J. A.

KOMPFNER, R. The development of the travelling wave tube. 106.

LEVI SETTI, R. Hypernuclei. 119.

MERRIFIELD, R. B. Solid-phase peptide syntheses. 3.

MILLER, A. J. Road traffic flow: some theories and their applications. 143.

MORTON, R. A. Quinones as biological catalysts. 81.

ROTHERHAM, L. The brittle fracture of steel. 45.

ROTHSCHILD, M. The rabbit flea and hormones. 162.

SALISBURY, F. B. The initiation of flowering. 74.

SARJEANT, W. A. S. The Xanthidia. 33.

UBBELOHDE, A. R. The anisotropy of graphite. 63.

WIGGLESWORTH, SIR VINCENT B. Insect hormones. 21.

WILLIAMS, F. C. and EASTHAM, J. F. The search for a variable-speed induction motor. 149.

YOUNG, J. Z. Two memory stores in one brain. 13.

Book reviews

ABETTI, G. and HACK, M. Nebulae and Galaxies (translated from the Italian by V. Barocas). 111.

ALFREY, G. F. Physical Electronics. 169.

ALIMARIN, I. P. and PETRIKOVA, M. N. Inorganic Ultramicroanalysis (translated from the Russian by M. G. Hell). 112.

Annual Reports on the Progress of Chemistry for 1963, Vol. LX. 169.

BARLOW, R. B. Introduction to Chemical Pharmacology (second edition). 116.

BARRINGTON, E. J. W. Hormones and Evolution. 113.

BELCHER, R., WILSON, C. L., and WEST, T. S. New Methods of Analytical Chemistry (second edition). 170.

BHACCA, N. S. and WILLIAMS, D. H. Applications of N.M.R. Spectroscopy in Organic Chemistry; Illustrations from the Steroid Field. 171.

BIRSS, ROBERT R. Symmetry and Magnetism. 169.

BISHOP, C. and SURGENOR, D. M. (Editors). The Red Blood Cell, a Comprehensive Treatise. 172.

BONNER, J. and TS'O, P. (Editors). The Nucleohistones. 114.

BOYLAND, E. (Editor). Mechanisms of Carcinogenesis: Chemical, Physical and Viral. British Medical Bulletin, Vol. XX, No. 2. 59.

BRODAL, A. and FÄNGE, R. (Editors). The Biology of Myxine. 174.

BROOK, ALAN J. The Living Plant. 115.

BUDZIKIEWICZ, H., DJERASSI, C., and WILLIAMS, D. H. Interpretation of Mass Spectra of Organic Compounds. 57. Structure Elucidation of Natural Products by Mass Spectrometry. Vol. I, Alkaloids. 113.

CALDIN, E. F. Fast Reactions in Solution. 112.

CARRICK, R., HOLDGATE, M., and PRÉVOST, J. (Editors). Biologie antarctique. 172.

CHIU, HONG-YEE and HOFFMANN, WILLIAM F. (Editors). Gravitation and Relativity. 56.

CHORLEY, R. J., DUNN, A. J., and BECKINSALE, R. P. The History of the Study of Landforms *or* The Development of Geomorphology, Vol. I: Geomorphology before Davis. 176.

CLARK, R. B. Dynamics in Metazoan Evolution: the Origin of the Coelom and Segments. 173.

COONEY, D. G. and EMERSON, R. Thermophilic Fungi, an Account of their Biology, Activities, and Classification. 174.

COTTRELL, A. H. The Mechanical Properties of Matter. 56.

CUTTING, WINDSOR C. (Editor). Annual Review of Pharmacology, Vol. IV. 115.

DAMASK, A. C. and DIENES, G. J. Point Defects in Metals. 58.

DANILEVSKII, A. S. Photoperiodism and Seasonal Development of Insects (translated from the Russian by J. Johnston). 172.

DOGIEL, V. A. General Parasitology (translated from the Russian by Z. Kabata). 172.

DUCHESNE, J. (Editor). The Structure and Properties of Biomolecules and Biological Systems. 172.

EDWARDS, JOHN O. Inorganic Reaction Mechanisms: An Introduction. 112.

FALK, J. E. Porphyrins and Metalloporphyrins, Vol. II. 58.

GATOS, HARRY C. (Editor). Surface Science, Vol. I, no. 1, January 1964. 57.

GELL-MANN, M. and NE'EMAN, Y. The Eightfold Way. 168.

GERSHENSON, D. E. and GREENBERG, D. A. Anaxagoras and the Birth of Physics. 116.

GOLD, V. (Editor). Advances in Physical Organic Chemistry, Vol. II. 57.

GOWING, MARGARET. Britain and Atomic Energy 1939–1945. 176.

HADDOW, A. and WEINHOUSE, S. (Editors). Advances in Cancer Research, Vol. VIII. 175.

HALL, MARIE BOAS (Editor). Experiments and Considerations touching Colours, by Robert Boyle. 60.

HARLAND, W. B., SMITH, A. GILBERT, and WILCOCK, B. (Editors). The Phanerozoic Time-scale. 171.

HAYES, WILLIAM. The Genetics of Bacteria and their Viruses; Studies in Basic Genetics and Molecular Biology. 59.

HOSKIN, M. A. William Herschel and the Construction of the Heavens. 60.

HUMMEL, DIETER. Identification and Analysis of Surface-active Agents by Infrared and Chemical Methods, Text Volume and Spectra Volume (translated from the German by E. A. Wulkow). 170.

JAMES, A. T. and MORRIS, L. J. (Editors). New Biochemical Separations. 114.

JERRARD, H. G. and McNEILL, D. B. A Dictionary of Scientific Units, including Dimensionless Numbers and Scales. 56.

KARLING, JOHN S. Synchytrium. 115.

KING-HELE, DESMOND. Theory of Satellite Orbits in an Atmosphere. 171.

KONDRAT'EV, V. N. Chemical Kinetics of Gas Reactions (translated from the Russian by J. M. Crabtree and S. N. Carruthers; edited by N. B. Slater). 57.

KRIVOGLAZ, M. A. and SMIRNOV, A. The Theory of Order-Disorder in Alloys (translated from the Russian by Scripta Technica, and edited by B. Chalmers). 176.

LANDY, M. and BRAUN, W. (Editors). Bacterial Endotoxins. 173.

LAURENCE, D. R. and BACHARACH, A. L. (Editors). Evaluation of Drug Activities: Pharmacometrics, Vols. I and II. 175.

LECLERCQ, R. Traité de la méthode scientifique. 111.

LEHNINGER, ALBERT L. The Mitochondrion, Molecular Basis of Structure and Function. 113.

LEOPOLD, L. B., WOLMAN, M. GORDON, and MILLER, J. P. Fluvial Processes in Geomorphology. 58.

LINSKENS, H. F. (Editor). Pollen Physiology and Fertilization. 174.

LOCKE, MICHAEL (Editor). Cellular Membranes in Development. 114.

LOCKWOOD, A. P. M. Animal Body Fluids and their Regulation. 60.

MARK, H. F., GAYLORD, N. G., and BIKALES, N. M. (Editors). Encyclopedia of Polymer Science and Technology: Plastics, Resins, Rubbers, Fibers. Vol. I, A—Amino Acids. 113.

MARKSTEIN, GEORGE H. (Editor). Nonsteady Flame Propagation. 111.

McMILLAN, P. W. Glass-Ceramics. 175.

MITCHELL, H. H. Comparative Nutrition of Man and Domestic Animals, Vols. I and II. 175.

MOORHOUSE, R. G. (Editor). Strong Interactions and High Energy Physics. 111.

MORSE, PHILIP M. Thermal Physics (third edition). 111.

MURRELL, J. N. The Theory of the Electronic Spectra of Organic Molecules. 170.

NESS, H. C. VAN. Classical Thermodynamics of Non-electrolyte Solutions. 169.

O'BRIEN, R. D. and WOLFE, L. S. Radiation, Radioactivity, and Insects. 59.

O'DWYER, J. J. The Theory of Dielectric Breakdown of Solids. 112.

OURISSON, G., CRABBÉ, P., and RODIG, O. R. Tetracyclic Triterpenes. 170.

PAOLETTI, R. and KRITCHEVSKY, D. (Editors). Advances in Lipid Research, Vols. I and II. 173.

PARTINGTON, J. R. A History of Chemistry, Vol. IV. 116.

PORTER, K. R. and BONNEVILLE, M. A. An Introduction to the Fine Structure of Cells and Tissues (second edition). 169.

RAO, C. N. R. Chemical Applications of Infrared Spectroscopy. 57.

RICHARDS, J. H. and HENDRICKSON, J. B. The Biosynthesis of Steroids, Terpenes, and Acetogenins. 171.

RICHARDSON, J. A. Physics in Botany. 115.

ROUILLER, CH. (Editor). The Liver: Morphology, Biochemistry, Physiology, Vols. I and II. 174.

RUTHERFORD, D. E. Introduction to Lattice Theory. 168.

SAVORY, THEODORE. Arachnida. 174.

SCHWARZ, J. C. P. (Editor). Physical Methods in Organic Chemistry. 58.

SIEGEL, B. M. (Editor). Modern Developments in Electron Microscopy. 112.

STARY, J. The Solvent Extraction of Metal Chelates. 170.

STREHLER, B. L. (Editor). Advances in Gerontological Research, Vol. I. 173.

TAVOLGA, WILLIAM N. (Editor). Marine Bio-Acoustics. 59.

WILBUR, K. M. and YONGE, C. M. (Editors). Physiology of Mollusca, Vol. I. 60.

WILLIAMS, WATKIN. Genetical Principles and Plant Breeding. 115.

WISE, EDMUND M. (Editor). Gold; Recovery, Properties, and Applications. 176.

YOUNG, J. Z. A Model of the Brain. 173.

ZARROW, M. X., YOCHIM, J. M., McCARTHY, J. L., and SANBORN, R. C. Experimental Endocrinology, a Sourcebook of Basic Techniques. 114.

Subject index

The articles are arranged, with regard to subjects, in numerical order according to the Universal Decimal Classification (Brit. Std. 1000). An alphabetical key is to be found on page IV.

37 Education

378.3:53/59 Educating the young scientist (Editorial). 62.

5 General Science

53/59:378.3 Educating the young scientist (Editorial). 62.

519 Applied Statistics

519.24:656.021 Road traffic flow: some theories and their applications. Miller, A. J. 143.

52 Astronomy

523.4 The planets. Dollfus, A. 87.

53 Physics

539.126.6 Hypernuclei. Levi Setti, R. 119.

539.184.3 Recombination of ions and electrons. Biondi, M. A. 40.

539.56:669.14 The brittle fracture of steel. Rotherham, L. 45.

54 Chemistry

541.128.13 Heterogeneous catalysis. Dowden, D. A. 69.

546.17.16 The fluorides of nitrogen. Colburn, C. B. 138.

546.26–1:622.336 :548.55 The anisotropy of graphite. Ubbelohde, A. R. 63.

547.314 :581.192.2 Polyacetylenic compounds in nature. Johnson, A. W. 126.

547.466.1:577.1 Solid-phase peptide syntheses. Merrifield, R. B. 3.

547.567 Quinones as biological catalysts. Morton, R. A. 81.

547.963.32 :576.311.1 :577.1 The ribonucleic acids in the nucleus and cytoplasm of animal cells. Harris, H. 50.

548 Crystallography

548.55:546.26–1 :622.336 The anisotropy of graphite. Ubbelohde, A. R. 63.

56 **Palaeontology**

561.26:582.263 Coccoliths. Black, M. 131.

561.27 The Xanthidia. Sarjeant, W. A. S. 33.

57 **Biological Sciences. Biochemistry**

574.6 (100) The International Biological Programme (Editorial). 118.

575.11:92 Centenary of Mendelism (Editorial). 2.

576.311.1:577.1:547.963.32 The ribonucleic acids in the nucleus and cytoplasm of animal cells. Harris, H. 50.

576.33:581.17.035 Meristems and the effect of radiation on cells. Clowes, F. A. L. 8.

576.4 Cell movements. Ambrose, E. J. 27.

577.1:547.466.1 Solid-phase peptide syntheses. Merrifield, R. B. 3.

577.1:547.963.32:576.311.1 The ribonucleic acids in the nucleus and cytoplasm of animal cells. Harris, H. 50.

577.18:595.7 Insect hormones. Wigglesworth, Sir Vincent B. 21.

58 **Botany**

581.145.1 The initiation of flowering. Salisbury, F. B. 74.

581.17.035:576.33 Meristems and the effect of radiation on cells. Clowes, F. A. L. 8.

581.192.2:547.314 Polyacetylenic compounds in nature. Johnson, A. W. 126.

582.263 Acetabularia. Brachet, J. L. A. 155.

582.263:561.26 Coccoliths. Black, M. 131.

59 **Zoology**

591.134:595.775 The rabbit flea and hormones. Rothschild, M. 162.

591.481.1:594.56 Two memory stores in one brain. Young, J. Z. 13.

591.9 (26.01) The surface fauna of the ocean. David, P. M. 95.

594.56:591.481.1 Two memory stores in one brain. Young, J. Z. 13.

595.7:577.18 Insect hormones. Wigglesworth, Sir Vincent B. 21.

595.775:591.134 The rabbit flea and hormones. Rothschild, M. 162.

621.3 **Electrical Engineering**

621.313.333 The search for a variable-speed induction motor. Williams, F. C. and Eastham, J. F. 149.

621.385.63 The development of the travelling wave tube. Kompfner, R. 106.

622 **Minerals**

622.336:548.55:546.26–1 The anisotropy of graphite. Ubbelohde, A. R. 63.

622.366:622.765 Development of the theory of the flotation of sulphide ores. Fleming, M. G. and Kitchener, J. A. 101.

622.765:622.366 *Idem.*

65 **Communication**

656.021:519.24 Road traffic flow: some theories and their applications. Miller, A. J. 143.

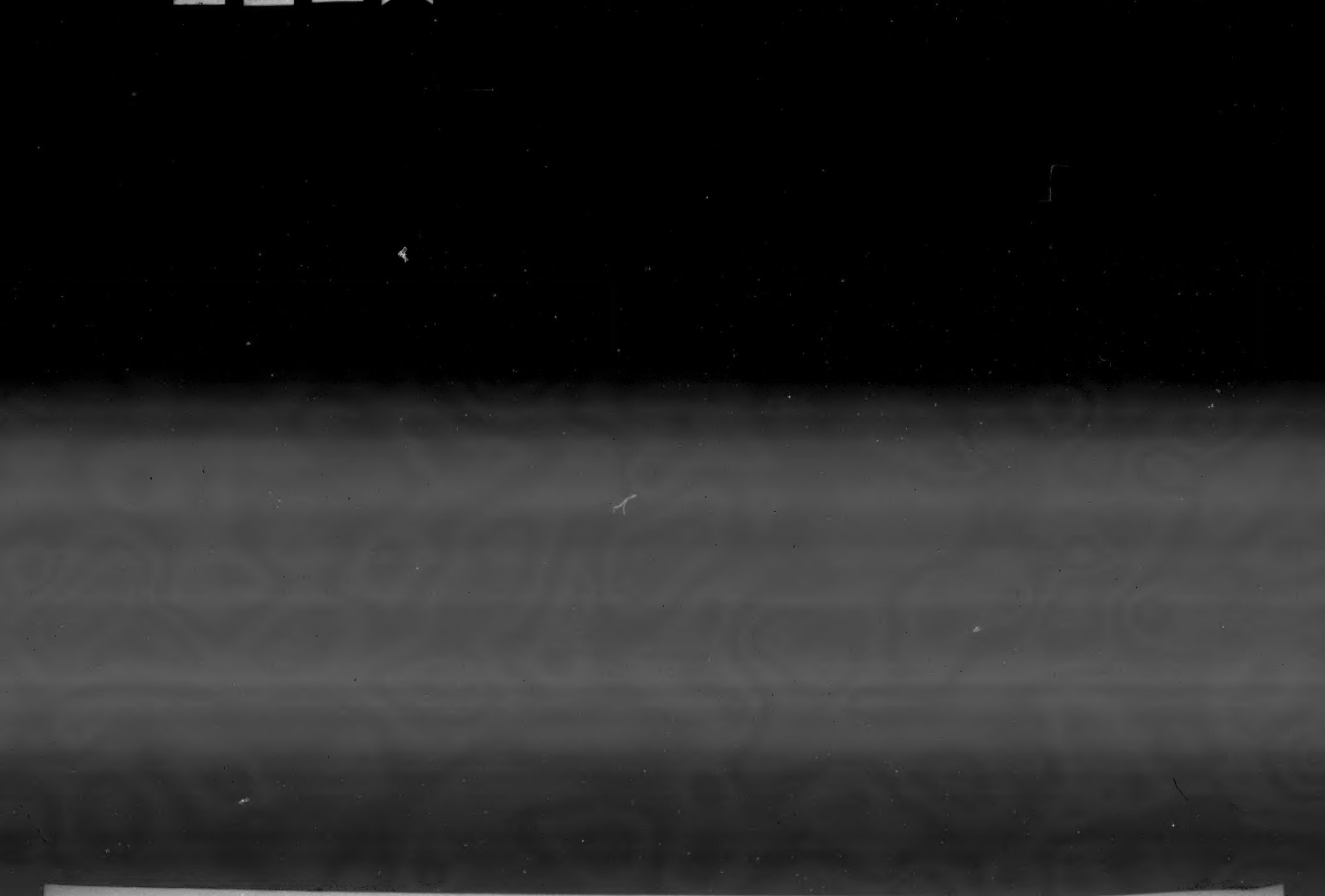
669 **Metallurgy**

669.14:539.56 The brittle fracture of steel. Rotherham, L. 45.

9 **History of Science. Biography**

92:575.11 Centenary of Mendelism (Editorial). 2

Alphabetical key

Acetabularia 582.263
Animal maturation 591.134
Anisotropy 548.55
Astronomy 52
Biochemistry 577.1
Biography 92
Botany 58
Brain 591.481.1
Brittle fracture 539.56
Cell movements 576.4
Chemistry 54
Coccoliths 561.26
Communications 65
Crystallography 548
Cytology 576.3
Cytoplasm movement 576.4
Education 378
Electrical engineering 621.3
Electronics 621.38
Flotation of ores 622.765
Flowering, initiation of 581.145.1
Graphite 546.26
Green algae 582.26
Heterogeneous catalysis 541.128.13
Hormones 577.18
Hypernuclei 539.126.6
Induction motors 621.313.333
Insects 595.7
International Biological Programme 574.6
Mendelism 575.11
Meristems 581.17.035
Metallurgy 669
Minerals 622
Nitrogen fluorides 546.17.16
Nucleic acids 547.963
Ocean surface fauna 591.9
Octopus, memory of 594.56
Palaeobotany 561
Palaeontology 56
Peptides 547.466.1
Physical chemistry 541.1
Physics 53
Planets 523.4
Plant chemistry 581.19
Polyacetylenic compounds 547.314
Quinones 547.567
Rabbit flea 595.775
Recombination of ions and electrons 539.184.3
RNA 547.963.32
Steel 669.14
Traffic flow 656.021
Travelling wave tubes 621.385.63
Xanthidia 561.27
Zoology 59

Made and printed at The Kynoch Press, Birmingham 6
for the publishers, Imperial Chemical Industries Limited, London, S.W.1